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RECENT DEVELOPMENTS IN CZECHOSLOVAK INDUSTRY

DISCUSS CZECHOSLOVAK MACHINE BUILDING INDUSTRY -- Berlin, Aussenhandels-Nachrichten, 20 Aug 52

The chief task of the First Five-Year Plan for the economic development of Czechoslovakia from 1949 to 1953 is the expansion and conversion of the Czech economy. According to official statements the center of gravity of this expansion is to be the heavy machine building industry. By the end of the Five-Year Plan, production figures for the heavy machine building industry are to be increased 48 percent over those originally planned.

The largest increase is planned in the production of steam and water turbines, cranes, equipment for metallurgical plants and mines, and machines for the chemical industry; and in the heavy electrical engineering industry. By the end of the Five-Year Plan, production of the heavy machine building industry will attain four times the 1947 volume. Almost half of the total 1953 exports will consist of the products of heavy industry, which will, almost without exception, be exported to Soviet Bloc countries.

In 1950 the annual output of the heavy machine building industry reached almost five times the output of 1945.

Systematic standardization of products and specialization of the individual enterprises is under way. In 1951, production programs were so divided among the already existing and the newly constructed enterprises that the problems caused by the abundance of individual manufacturing units have been greatly simplified. This redistribution as well as standardization will result in a reduced number of designs and types; new, special enterprises are being created which will be able to convert to mass production.

At the most recent Prague trade exposition an interesting novelty was a three-phase, vertical alternator weighing 55 tons. Other noteworthy items were a turbine assembly, consisting of a 600-kilowatt steam turbine; an alternator

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and pump aggregate weighing 30 tons; a 20-ton Kaplan fly-wheel system with an output of 1,000 kilowatts; a Ward-Leonard-system control arrangement with three-phase motor drive; a 200 ampere 500 volt terminal oil switch of a new design with two-way flash cut-out; a rail-mounted dry transformer for an effective voltage of 22,000 volts; a two-roller calender, weighing a total of 12 tons, for the processing of rubber and synthetics; a Siemens-Martin furnace; ceramic machines and building machines; new luxury passenger cars for the Czechoslovak State Railways; excavators; etc.

The Skoda Works is producing modern fast- or slow-running, four-cycle diesel engines of 1 to 8 cylinder design with power outputs of 15 to 2,000 horsepower. While the Skoda Works primarily manufactures heavy motors suitable for the operation of factories, power plants, and pumping stations, it also produces low-horsepower Slavia-brand diesel motors, which have already been widely introduced on foreign markets. Because of their simple design, the Slavia diesel motors are particularly well suited to agriculture.

The export of Czechoslovak electric motors has reached world-wide proportions. Motors of all types, designs, and capacities are made. For example: normal three-phase asynchronous motors with short-circuit armatures for high and low voltages, slip-ring armature motors, single-phase motors, motors for textile machinery, explosion-proof motors, motors for cranes and elevators, commutator-motors with continuous rpm regulators, traction motors, direct-current motors, reduction-gear motors, pole-switching motors, special small motors for sewing machines, generators, motor-generators, dynamometers, and various motor drives for rolling mills, paper factories, and other installations.

Roller grinding mills with one to five rollers have become indispensable to all the varied branches of the pharmaceutical, cosmetic, chemical, and food industries, especially for the production of paints, lacquers, soap, etc. The roller grinding mills are particularly suited to fine grinding of various solid, liquid, or paste-like materials.

Excavators are being produced in a series of types, such as universal shovel excavators, bucket excavators, etc. The shovel-type excavators have a capacity of 0.5 to 7.0 cubic meters. The E7 excavator is electrically driven by means of three direct-current synchronous motors, supplemented by a Ward-Leonard installation. The capacity of this excavator is one work-cycle per minute, i.e., 430 cubic meters of earth per hour. The total weight of the machine is 350 tons. Czechoslovak bucket excavators are being delivered to a number of countries in all parts of the world.

Among the products which established the reputation of Czechoslovak engineering, the steam locomotive occupies a place of honor. Best known are the locomotives built by the Skoda Works. All locomotive types built by Skoda are characterized by efforts to improve performance by simplifying the servicing of the engines, to increase operational reliability, and to reduce maintenance costs. In the effort to reduce maintenance costs the factory paid special attention to fusion-welding and resistance-welding processes. Even today, certain types of locomotives are being supplied with unit-welded boilers and tenders. As far as riveting is concerned, the Skoda boiler-assembly plant uses its own system of bolt riveting.

Railroad cars built in the Czechoslovak rolling stock plants have kept pace with the most modern designs. Cars in production include standard freight cars, tank cars, special cars for transporting barrels or live fish or fowl, dump cars, refrigerator cars, slag cars, cars for transporting rough stock, cars for quenching coke, and various cars with crane- and assembly-facilities, mobile electric power stations, etc. Two- and four-axle passenger cars of all designs, including service, sleeping, and dining cars (particularly luxury cars), are being built and sent to a number of foreign countries. The production program of the Czechoslovak machine building plants includes diesel motor railroad cars and three-section motor-car units.

The Czechoslovak precision-machine building industry is devoting maximum attention to the continued development and construction of special machine tools. For example, the H 100 horizontal drill, one of the newest radial drilling machines, drills, mills, cuts threads, reams, and takes face cuts of various parts requiring great accuracy and especially good surface quality. The speed and the range of feeds are selected by means of selector disks. A servomotor, cut in by a push button, takes care of automatic shifting. The central handwheel regulates spindle-feed, coarse and fine adjustment of the feed, vertical position of the headstock, horizontal and rotational shifts of the table, and coarse and fine adjustment of the spindle support. High-speed operation is independent of the number of revolutions of the working spindle or the face-plate and always works against the direction of the work-feed; this prevents damage to the work or to the tool.

The VR 10 radial drill exhibits a number of patented improvements, by means of which operation is even more simplified and output is increased.

The FS 25 hob-type milling machine is very well suited to the precise finishing of spur, helical, and worm gears, and also makes possible the tangential milling of worm gears. The simple push-button operation with relay-remote control makes it easy to train women workers.

Special machines are being produced for die-casting nonferrous metals (especially zinc, aluminum, copper, and magnesium alloys). These machines range from No 408 (small) to the largest types.

PRODUCE NEW AUTOMOBILES AND MOTORCYCLES -- Berlin, Aussenhandels-Nachrichten, 27 Aug 52

The Czechoslovak automobile industry is producing new aerodynamically and structurally perfect car models for the markets of the world.

The Tatraplan, for example, is a car of the most advanced design. With the flat, four-cylinder, overhead-valve, Boxer-type engine installed in the rear of the car, the streamlined shape increases the cruising speed and reduces fuel consumption. The drive shaft is omitted, the large rear hood makes the engine easily accessible, and the low construction lowers the center of gravity and increases driving safety. The individual front-wheel suspension with transverse leaf spring parallelogram, torsion bars in the rear, and effective direct-acting shock absorbers assure well-balanced suspension and perfect holding of curves and thus contribute to a high average cruising speed, even over poor roads. Cylinder volume is 2 liters, motor output 52 brake horsepower at 4,000 rpm.

The Skoda 1102 has a four-cylinder, four-cycle, water-cooled, overhead valve engine. Like the Tatraplan it is distinguished by individual wheel suspension on all wheels. The gearshift lever under the wheel makes driving easier, and the new two-spoke steering wheel affords clear vision of the instrument panel. Additional advantages are its extraordinary climbing ability in mountainous country, and its exceptionally quiet operation. Considering its performance, fuel consumption is extremely low -- about 8 liters per 100 kilometers. Its maximum speed is more than 100 kilometers per hour. The second, third, and fourth gears are noiseless and the third and fourth are synchronized.

Skoda makes two-door sedans, two-door coupes, convertible coupes, station wagons, panel trucks, and ambulances.

The most popular products of the Czechoslovak automobile industry are the Jawa and CZ brand motorcycles, the best two-cycle models in the world. Czechoslovakia ranks second among world motorcycle exporters. Czechoslovak motorcycles are made in various models.

The CZ motorcycles are manufactured in two models: 125 cubic centimeters and 150 cubic centimeters. The two-cycle engine is completely reliable in operation, is noiseless, and has great power. The three well-proportioned gear trains in the block, with an automatic disengaging clutch, easily adapt the machine to any type of terrain. The primary chain and the clutch run in an oil bath, thus insuring quiet operation. Shifting of gears is made especially easy by the fact that all gears are engaged all the time.

The Jawa 250-cubic-centimeter model is a motorcycle with a one-cylinder, two-cycle engine and telescope front- and rear-wheel suspension. The four-speed gear box assures full utilization of engine power. Foot shifting, with automatic disengaging clutch, makes operation of the machine easier and leaves the hands free for steering. Both wheel axles are easily dismountable to facilitate changing of tires.

The Jawa 350-cubic-centimeter motorcycle has all the advantages of the above model, as well as a powerful two-cycle-parallel-twin engine. The two cylinders, which are at right angles to the direction of travel, assure efficient and uniform cooling of the engine. As with the 250-cubic-centimeter model, the upper part of the front fork of the machine terminates in an attractive head for recessed mounting of the headlight, speedometer, and odometer.

The heaviest model among Czechoslovak motorcycles is the 500-cubic-centimeter Jawa, with a 26-horsepower, two-cylinder engine and a speed of 133 kilometers per hour. The 500-cubic-centimeter model is equipped with four-speed drive, foot shifting, and automatic disengaging clutch as well as telescopic suspension of front and rear wheels.

The CZ 150-cubic-centimeter model and the Jawa 250-cubic-centimeter model are also used in the construction of "rickshas." The "ricksha" is actually a tricycle consisting of a complete motorcycle whose rear wheel has been removed. The fork of the rear axle supports a superstructure which can be used to transport two persons or various other loads. An elongated chain drives the rear wheels, which are braked from the machine itself. The differential is replaced by an effective equalizing mechanism. The carrying capacity of the CZ model is 150 kilograms and that of the Jawa model is 160 kilograms.

REPORT ON DEVELOPMENT IN THE CZECHOSLOVAK BUILDING INDUSTRY -- Berlin, Aussenhandels-Nachrichten, 9 Aug 52

During the 1952 debate on the Czechoslovak budget it was found that the production index of the building industry has risen to 170 percent of its prewar level.

Last year saw the erection of over 900,000 square meters of industrial structures and 1.2 million square meters of other structures. Agriculture was given 600,000 square meters of new buildings and 500,000 square meters of stable space. In addition to this, 400,000 square meters of building space for health purposes and 300,000 square meters of space for cultural buildings were made available. In cities, 23,000 apartments, houses, and schools were built, covering a total area of 520,000 square meters. In Slovakia, the number of industrial structures completed in 1951 was double that of 1950.

In accordance with the planned 34-percent increase in industrial output, the Czechoslovak building industry must complete 4,500 new apartments for workers this year. The greatest effort, which calls for a 65-percent increase in building activity, is directed toward the expansion of the Ostrava industrial region.

At present numerous coal and ore mines are being developed, and 16 hydroelectric plants, a number of machine-building plants,and other industrial structures are being built in Czechoslovakia. To accelerate construction, the number of standard structures is constantly increased. The construction machinery industry plays an important part in completing work as scheduled. Top results in the leveling of ground and excavation of building sites were obtained with an earth-moving machine using three direct-current motors. It moves 420 cubic meters of soil per hour, replacing the work of 600 men.

FIND NEW USE FOR GLASS TUBES -- Berlin, Aussenhandels-Nachrichten, 2 Aug 52

The Czechoslovak food industry is using increasing quantities of glass tubing, to replace metal tubes. Following extensive experiments, Czech glass manufacturers have succeeded in producing non-splintering glass tubes in various shapes and sizes, of sufficient strength to withstand pressures of up to 6 atmospheres and temperatures of up to 120 degrees centigrade.

A short time ago glass tubing was introduced in Czechoslovak mills, following experiments in a large milling enterprise near Prague where all wooden pipes had been replaced by glass tubing. The experiments gave completely satisfactory results under three-shift, maximum load conditions.

The advantages of glass equipment in mills may be summarized as follows: easy control of the work process, freedom from dust, space-saving due to reduction of the angle of descent of the pipes, better viewing conditions compared to wood installations, less wear due to the motion of the grain, less danger of fire, complete disappearance of the flour moth, reduction of the time necessary to clean the installation, ease of making repairs, and simple interchangeability of the pipes.

A disadvantage in the use of glass pipes is the possibility of breakage. Since the type of glass used is nonsplintering, however, it breaks in large pieces and does not easily contaminate the flour. Damaged pipes can be repaired easily by inserting special traps or by cementing the glass.

The introduction of glass pipes has also been found worthwhile in Czechoslovak dairies, for hygienic and other reasons.

INTRODUCE GLASS PRODUCTS IN ALL BRANCHES OF INDUSTRY -- Berlin, Aussenhandels-Nachrichten, 9 Aug 52

In Czechoslovak industry glass is rapidly replacing such materials as iron and nonferrous metals. The drawback is the relatively poor heat resistance of industrial glass. For this reason the Czechoslovak glass industry is concentrating its efforts on the improvement of industrial glass.

After long experiments the glass industry has finally begun the production of thick glass pipe which can withstand a pressure of up to 20 atmospheres and a temperature of up to 40 degrees centigrade. The first glass water main has already been installed near Prague. A gradual replacement of cast iron water pipes by glass pipes is planned.

The chemical and food industries, too, are using more and more glass tubing. Several dairies, preserved fruit plants, and vinegar distilleries already have such pipelines.

The Czechoslovak glass industry has recently made progress in the manufacture of basalt pipes. The basalt, mined in local quarries, is melted in furnaces and the molten mass is poured into molds. The crystalline basalt thus obtained has a high resistance to friction. The basalt pipe is used primarily for pneumatic transportation of iron ores in mines. In cement plants, coking plants, foundries, etc., basalt in sheet form is used as a floor covering.

Progress has also been made in the production of glass-fiber textiles, although there are still difficulties in the finishing process. These products with their high heat resistance could contribute to the saving of considerable quantities of nonferrous metals in the construction of electric motors, etc.

PRODUCE NEW PLASTIC -- Berlin, Aussenhandels-Nachrichten, 27 Aug 52

Czechoslovak chemists have developed a new plastic called Novodur. It can be used in place of celluloid and has the added advantage of being fireproof. When used in the manufacture of pipelines, Novodur, in contrast to steel and lead, does not react to acids, lyes, or gases, and is rust-resistant. Novodur is extremely light and elastic. In addition to being a substitute for nonferrous metals, it can also be made into waterproof clothing.

REVIEW CZECHOSLOVAK PENICILLIN PRODUCTION -- Berlin, Aussenhandels-Nachrichten, 29 Oct 52

Following the expansion of the production capacity of the penicillin plant in Rostoky, near Prague, Czechoslovak penicillin production has increased to such an extent that it is now able to meet the entire domestic demand, with a surplus. The production of penicillin ointments in particular has shown significant expansion. Production of insulin has been increased to such a point that, in the near future, no more imports of this drug will be necessary.

The pharmaceutical industry of Czechoslovakia now also produces the well-known tuberculosis remedy, Pas, which is administered in tablet form or by injection. In the near future this drug will also appear in ointment form.

FULFILL PLAN OF PENICILLIN PRODUCTION -- Berlin, Aussenhandels-Nachrichten, 2 Aug 52

The Rostoky penicillin plant, near Prague, has fulfilled the half-year plan for penicillin production by 111 percent, and for the collection of dried blood plasma by 156 percent. The planned goal was 32 percent higher than for the first half of 1951.

PRODUCE MEDICAL INSTRUMENTS -- Berlin, Aussenhandels-Nachrichten, 21 Jun 52

Czechoslovakia formerly found it necessary to import 90 percent of all medical instruments and apparatus. The Hirana enterprise, established in 1948, has now succeeded in increasing production to a point where all necessary medical instruments will be manufactured domestically.

In addition to surgical instruments, Czechoslovakia now produces anesthetic apparatus; X-ray machines; iron lungs; dental equipment; equipment for operating rooms, clinics, mobile outpatient clinics, and electrical therapy institutes; and other instruments and apparatus.

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